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For information of Coeur d'Alene

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FOREST INSECT INVESTIGATIONS

AN ANALYSIS OF DATA FROM THE SIXTH ANNUAL INSECT SURVEY OF THE COEUR D'ALENE NATIONAL FOREST 1934

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AN ANALYSIS OF DATA FROM THE SIXTH ANNUAL INSECT SURVEY OF THE COEUR D'ALENE NATIONAL FOREST 1934

The history of the mountain pine beetle infestation in the stands of the Coeur d'Alene National Forest shows very clearly the effects of control measures. The forest has served, in a way, as a laboratory where approved methods of control have been applied on a large scale. The greatest success was attained when control measures were applied in 1930 against an infestation of a highly epidemic character. A 57 percent reduction followed this operation and it is sincerely believed that a serious epidemic was checked.

During the years following the 1930 control project, a distinct change has occurred in the character of the infestation. The 1931 reinfestation showed an increase of 24 percent over 1930 which was considered due to dissemination of insects from a lesser number of heavily attacked trees to a large number of lightly attacked windfalls, which were blown down during a severe windstorm in the spring of 1931. Windfalls constituted about one-half the entire infestation during that year and have remained at about the same level during the following years as windstorms continued to supply an abundance of this non-resistant material. A new factor which no doubt has an important a bearing on the development of the infestation as windfalls was first recognized in 1933 when it was discovered that in some areas a large percentage of the standing trees which had

been attacked showed little or no resistance to bark beetle attacks. These trees were found to be infested with a root fungus that lowered their resistance to about the same level as that of windfalls.

While the infestation of all this non-resistant material has been considered of as highly an epidemic nature as an infestation in resistant material, it seems to be much harder to control than the epidemic which existed in 1929 because in this non-resistant material a very few insects are able to make a successful attack.

The following table shows the trend of the infestation since 1929.

Table I.

	1929	1930	1931	1932	1933	1934
Estimated on Forest	25,904	9,327	12,505	15,007	19,332	24,479
Recommended for treatment	25,904	7,517	7,477	6,592	1,281	8,454
Treated (fall or following spring)	22,841	7,116	7,906	6,639	887	

In the following pages, each unit is discussed separately, which will give a clearer picture of conditions on different parts of the forest. It is recognized that the data relative to the status of attacks were taken by non-technical men and tools necessary for complete root examinations were not used. However, a brief examination of each infested tree was made and it was marked defective if it was obviously so. The classification of attacks into heavy,

medium and light was made according to the personal reaction of each man as he examined the infested trees and would be classed as heavy, medium or light in relation to the majority of attacks on the forest.

LITTLE RIVER DISTRICT

Forks

New attacks per acre:	1933	1934	% change in status
Sound)	.043	.014)	- 67
Defective)		.000)	
Windfalls	.056	.324	+478
Total	.099	.338	+241
Percent of attacks:			
Heavy	43	13	
Medium	43	54	
Light	14	67	

Medium and light attacks predominate this year due to the high increase in the percentage of infested windfalls. The area has shown a steady decrease since 1930 until the present year.

Tom Lavin

New attacks per acre	1933	1934	% change in status
Sound)	.024	.042)	+142
Defective)		.016)	
Windfalls	.071	.075	+ 6
Total	.095	.133	+ 40
Percent of attacks:			
Heavy	58	13	
Medium	33	31	
Light	9	56	

The infestation on this unit has remained about the same since 1930. The 40 percent increase recorded this year is probably due to a wider distribution of insects into light attacks.

Iron Creek

New attacks per acre:	1933	1934	% change in status
Sound)		.081)	
Defective)	.052	.000) . . .	+ 56
Windfalls	.112	.256	+129
Total	.164	.338	+105
Percent of attacks:			
Heavy	68	30	
Medium	14	40	
Light	18	30	

The infestation on this unit has steadily increased since 1930 but the infested windfalls are probably the cause of the present rise.

Cascade

New attacks per acre:	1933	1934	% change in status
Sound	.118	.036	- 69
Defective	.051	.006	-88
Windfalls	.183	.125	- 32
Total	.352	.167	- 52
Percent of attacks:			
Heavy	76	18	
Medium	12	43	
Light	12	39	

It seems that the 1933 fall control operations in Cascade Creek were quite effective in reducing the infestation. During the project, 887 trees were cut and burned and some 200 others were tagged but left untreated because they contained a high percentage of parasitism.

Cathcart

New attacks per acre:	1933	1934	% change in status
Sound)		.000)	
Defective)	.058	.034) . . .	- 41
Windfalls	.000	.075	+100
Total	.058	.109	+ 88
Percent of attacks:			
Heavy	72	0	
Medium	14	15	
Light	14	85	

Although this unit actually shows an increase of 88 percent, the attacks are practically all light. The percentage of windfalls has increased from zero to the present status and all the standing infested trees were found to be defective.

Picnic			
New attacks per acre	1933	1934	% change in status
Sound) . . . . . Defective)	.111	.000) . . . .018)	- 84
Windfalls	.000	.268	+100
Total	.111	.286	+158
Percent of attacks:			
Heavy	75	6	
Medium	25	44	
Light	0	50	

This unit, as well as Cathcart has been but recently logged off. The opening up of the stand by logging may be the cause of the increased number of windfalls.

Honeysuckle			
New attacks per acre:	1933	1934	% change in status
Sound	.020	.100	+400
Defective	.035	.021	- 40
Windfalls	.027	.100	+270
Total	.082	.221	+169
Percent of attacks:			
Heavy	59	17	
Medium	29	36	
Light	12	47	

This unit has shown both increases and decreases in the past. However, the present infestation is the highest recorded and is probably comparable to the 1929 mark. There has been a large increase in the number of sound trees attacked which indicates a high epidemic

potential. Control measures have been recommended for 2560 acres of thisunit where a concentration of .360 infested trees per acre (922) are estimated. Of these 922 infested trees, 186 were treated in a tree medication experiment conducted last fall. However, there are still approximately 736 infested trees to be treated.

	Leiberg		
New attacks per acre:	1933	1934	% change in status
S Sound	.007	.020	+ 185
Defective	.006	.019	+ 217
Windfalls	.007	.137	+1857
Total	.020	.176	+ 780
Percent of attacks:			
Heavy	33	11	
Medium	33	22	
Light	33	67	

The 780 percent increase in this unit is one of the largest that occurred on the forest and is no doubt due to the increase in windfalls. The present infestation of .176 per acre is not considered dangerous because it is practically all windfalls.

	Laverne		
New attacks per acre:	1933	1934	% change in status
Sound	.018	.037	+105
Defective	.028	.012	- 57
Windfalls	.000	.061	+100
Total	.046	.110	+139
Percent of attacks:			
Heavy	20	11	
Medium	80	33	
Light	0	56	

An increase from zero to .061 per acre of infested windfalls is responsible for the increase in this unit.

	Copper Creek		
New attacks per acre:	1933	1934	% change in status
Sound	.036	.037	+ 3
Defective	.041	.043	+ 6
Windfalls	.026	.019	-30
Total	.103	.099	- 4
Percent of attacks:			
Heavy	62	50	
Medium	25	50	
Light	13	0	

The Copper Creek infestation has been decreasing since 1931.

The following table is a summary of the units in the Little Coeur d'Alene River District. The summary at the bottom as well as some of the summaries given with each unit are not complete as to the number of defective trees per acre. These trees are not separated from the sound trees on all the units; therefore, to secure the percent of change in status, both sound and defective trees for 1934 were used in comparison with sound and defective for 1933 except where the complete data were available.

Table II

Little River Dist.	Insect Survey Data Coeur d'Alene Forest 1934									
		N. A. per acre		% N. A. windfalls		Total: N. A.	% of increase fr. 1931 to		
UNIT*	Acres	1933	1934	1933	1934	1934	1932	1933	1934
Forks 30.__.32.__.__	1,100	.099	.338	57	96	372	-25	-36	+241
Tom Lavin 30.__.32.__.__	3,000	.095	.133	75	50	399	+12	- 6	+ 40
Iron Creek 30.__.__.__.__	4,120	.164	.337	68	76	1388	+427	+ 61	+105
Cascade 30.__.__.__.34	4,640	.352	.167	52	75	775	+ 11	+283	- 52
Cathcart 30.__.__.33.__	3,200	.058	.109	0	69	349	+427	- 75	+ 88
Picnic __.__.__.__.__	1,680	.111	.286	0	94	480	+ 42	+ 22	+158
Honeysuckle 30.__.__.33.__	5,320	.082	.221	33	45	1176	+181	- 49	+169
Leiberg 30.__.32.__.__	4,440	.020	.176	33	78	781	- 51	- 80	+780
Laverne 30.__.32.33.__	2,560	.046	.110	0	55	282	+ 45	- 63	+139
Copper __.__.__.__.__	4,000	.103	.099	25	19	396	- 35	- 2	- 4
TOTAL	34,060	.121	.188	45	67	6398	+ 45	- 12	+ 55

* Figures indicate year in which control measures were applied, and in each case means that they were applied against the previous year's infestation. In some instances, part or all of the control measures were conducted during the fall of the year in which the infestation occurred. However, it is listed here as though it were conducted the following spring. EG., Cascade Creek: The '34 treatment actually occurred during the fall of 1933 against 1933 infestation.

Little River Summary

New attacks per acre:	1933	1934	% change in status
Sound)	.067	.045)	- 7
Defective)		.017)	
Windfalls	.054	.126	+133
Total	.121	.188	+ 55
Percent of attacks:			
Heavy	66	19	
Medium	22	39	
Light	12	42	

GRIZZLY MOUNTAIN DISTRICT

Taylors

New attacks per acre:	1933	1934	% change in status
Sound	.016	.053	+231
Defective	.027	.098	+263
Windfalls	.245	.008	- 97
Total	.288	.159	- 45
Percent of attacks:			
Heavy	42	57	
Medium	26	33	
Light	32	10	

The increase in the percentage of heavy attacks is probably comparable to the increase in the sound timber attacked and the decrease in the number of windfalls, which shows a higher concentration of insects in a smaller number of trees.

Forks-Cabin

New attacks per acre:	1933	1934	% change in status
Sound)	.093	.070)	+100
Defective)		.114)	
Windfalls	.186	.049	- 74
Total	.278	.233	- 16
Percent of attacks:			
Heavy	30	27	
Medium	41	35	
Light	29	38	

The infestation on this unit seems to be definitely on the decline, for, although there was a decrease in the number of windfalls, there was also a slight decrease in the heavy and medium attacks.

Can Creek

New attacks per acre:	1933	1934	% change in status
Sound	.000	.000	---
Defective	.014	.000	-100
Windfalls	.041	.118	+188
Total	.055	.118	+114
Percent of attacks:			
Heavy	50	25	
Medium	25	50	
Light	25	25	

The increase in the number of windfalls and the decrease in the heavy attacks seem to indicate that the infestation is about the same as last year.

West Fork

New attacks per acre:	1933	1934	% change in status
Sound)	.104	.037)	- 63
Defective)		.001)	
Windfalls	.072	.061	- 15
Total	.176	.099	- 43
Percent of attacks:			
Heavy	45	0	
Medium	32	75	
Light	23	25	

The infestation on this unit also shows a decrease both in total infestation and in heavy attacks which is a very favorable sign.

Clay Creek

New attacks per acre:	1933	1934	% change in status
Sound)	.150	.067)	- 7
Defective)		.072)	
Windfalls	.096	.101	+ 5
Total	.246	.240	- 2
Percent of attacks:			
Heavy	36	25	
Medium	18	42	
Light	46	33	

The Clay Creek infestation is about the same as last year. It is believed that as there was a general reduction in the other units of Steamboat Creek, the effect will soon be noticed in Clay Creek.

Lower Cougar

New attacks per acre:	1933	1934	% change in status
Sound)	.087	.029)	+ 23
Defective)		.077)	
Windfalls	.102	.019	-81
Total	.189	.125	-34
Percent of attack:			
Heavy	18	38	
Medium	23	47	
Light	59	15	

There is evidently a somewhat heavier concentration of insects in standing trees as the decrease in the number of windfalls and the increase in heavy attacks would indicate.

Upper Cougar

New attacks per acre:	1933	1934	% change in status
Sound)	.010	.013)	+160
Defective)		.013)	
Windfalls	.105	.006	- 94
Total	.115	.032	- 72
Percent of attacks:			
Heavy	50	20	
Medium	23	20	
Light	27	60	

The Upper Cougar unit has decreased for the past two years.

Bumblebee

New attacks per acre:	1933	1934	% change in status
Sound)	.114	.055)	+ 3
Defective)		.062)	
Windfalls	.038	.000	-100
Total	.152	.117	- 23
Percent of attacks:			
Heavy	52	65	
Medium	24	35	
Light	24	0	

Logging operations on this unit have probably been a factor in reducing the infestation. However, a decrease in the amount of windfalls has also caused an increase in the heavy attacks or a concentration of insects in fewer trees.

Table III

Grizzly Mountain District / UNIT	Acres	N. A. Per acre 1933	N. A. Per acre 1934	% N.A. on windfalls 1933	% N.A. on windfalls 1934	Total N. A. 1934	% of increase fr. 1931 to 1932	% of increase 1932 to 1933	% of increase 1933 to 1934
Taylors 30,31,32,__,__	2,800	.288	.159	85	5	445	-57	+433	-45
Forks Cabin 29,30,31,__,33,__	5,440	.278	.233	67	21	1267	+ 220	+112	-16
Can Creek 30,31,32	1,760	.055	.118	75	0	208	- 45	-37	+114
West Fork 30,31,__,__,__	3,960	.176	.099	41	62	392	+ 145	+ 71	-43
Clay Creek 29,30,31,__,33,__	2,320	.246	.240	39	42	557	+ 210	+ 47	- 2
Lower Cougar 30,31,32,33,__	3,600	.189	.125	54	15	450	+ 24	+ 26	-34
Upper Cougar __,31,__,33,__	3,700	.115	.032	91	20	118	+ 166	- 18	-72
Bumblebee 30,31,32,__,__	3,040	.152	.117	25	0	356	-82	+407	-23
TOTAL	26,620	.197	.142	60	22	3793	+ 132	+ 77	-28

Grizzly Mountain Summary

New attacks per acre:	1933	1934	% change in status
Sound)	.079	.051)	+ 40
Defective)		.060)	
Windfalls	.118	.031	-74
Total	.197	.142	-28
Percent of attacks are:			
Heavy	37	33	
Medium	30	39	
Light	33	28	

During the 1933 control project, insect infested trees that contained a high percentage of parasites in the Clay Creek, West Fork and Forks-Cabin units were left untreated. Although the infestation increased in 1933, the average parasitization also increased from 30 to 55 percent. It is felt that this increase in parasitization is partially responsible for the general reduction which occurred in 1934.

SHOSHONE DISTRICT

There has been a general increase in the number of infested trees on the Shoshone District. Some of the individual units show decreases, but in most instances it was caused by a decrease in the number of windfalls which served as host material. In some cases where such a condition exists, attacks are concentrated on a lesser number of standing trees and as one infested standing tree is considered to contain brood roughly equivalent to the number found in three average infested windfalls, it will be readily seen that in such areas there is the same amount of infestation and the potential increase is the same. It seems a very opportune time to reduce the infestation by control measures and to increase the natural controlling factors by leaving all infested trees in which the brood is 20 percent parasitized. The apparent success achieved by this method in parts of Steamboat Creek indicate that favorable results can be secured in

controlling an infestation where a large amount of non-resistant host material prevails.

On the following five units, the Sisson's Yellow Dog and Downey group, much the same condition of infestation now exists as was present last year with a general increase of about 40 percent. There is some reduction in percent of infested windfalls, but these have never been a large factor in the infestation on these units. During the 1933 survey it was reported that 80 to 90 percent of the standing infested trees were also infested with a root fungus, and that large numbers of non-infested trees were also infested. The 1934 data indicate that some 85 percent of the infested trees fall into this class.

Control measures have been conducted on these units for four continuous years (1930 to 1933) with a result that a serious epidemic which existed in 1929 was no doubt held to a minimum of destruction. The first year of control showed a marked reduction which has been gradually lost during the subsequent years as the infestation increased despite further control measures. It has been shown during the past few years that the increase was due to the reinfestion of non-resistant host material and that there was a tendency toward lighter attacks even though the actual number of infested trees increased. However, during 1933 only about 6 percent of the infestation was in healthy timber, while in 1934 about 9 percent was in healthy timber and the balance in defective trees. The attacks are still predominately light but as there is a large amount of this

lightly infested material per acre, it is thought best to institute control measures while the infestation is still in its present form.

Sisson's

New attacks per acre:	1933	1934	% change in status
Sound	.042	.048	+14
Defective	.170	.250	+47
Windfalls	.044	.012	-73
Total	.256	.310	+21
Percent of attacks:			
Heavy	67	22	
Medium	15	45	
Light	18	33	

North Yellowdog

New attacks per acre:	1933	1934	% change in status
Sound)		.062)	
Defective)	.019	.078)	+636
Windfalls	.356	.094	-69
Total	.375	.234	-38
Percent of attacks:			
Heavy	56	27	
Medium	41	53	
Light	3	20	

Yellowdog River

New attacks per acre:	1933	1934	% change in status
Sound	.022	.039	+77
Defective	.201	.388	+93
Windfalls	.162	.004	-97
Total	.385	.431	+12
Percent of attacks:			
Heavy	65	14	
Medium	16	42	
Light	19	44	

Yellowdog Creek

New attacks per acre:	1933	1934	% change in status
Sound)	.034	.044)	+194
Defective)		.056)	
Windfalls	.041	.093	+127
Total	.075	.193	+157
Percent of attacks:			
Heavy	88	21	
Medium	6	46	
Light	6	33	

Downey Creek

New attacks per acre:	1933	1934	% change in status
Sound)	.141	.076)	+88
Defective)		.189)	
Windfalls	.058	.029	-50
Total	.199	.294	+48
Percent of attacks:			
Heavy	67	21	
Medium	25	40	
Light	8	39	

Lower Flat Creek

New attacks per acre:	1933	1934	% change in status
Sound)	.112	.068)	+16
Defective)		.062)	
Windfalls	.112	.044	-61
Total	.224	.174	-22
Percent of attacks:			
Heavy	78	36	
Medium	19	39	
Light	3	25	

Although there has been a slight reduction in the infestation and a decrease in the heavily attacked trees, the attacks are still preponderantly heavy and medium, and as this unit lies adjacent to others where control is recommended, it has been included as a measure of protection.

Bennett

New attacks per acre:	1933	1934	% change in status
Sound	.000	.196	+100
Defective	.000	.000	--
Windfalls	.500	.059	- 88
Total	.500	.255	- 49
Percent of attacks:			
Heavy	30	54	
Medium	35	31	
Light	35	15	

The decrease from 100 to 26 percent windfalls on this unit is probably responsible for the 49 percent decrease in the infestation. However, a large increase in the number of sound standing trees attacked indicates that this unit has a potential increase greater than last year.

Brett-Miner

New attacks per acre:	1933	1934	% change in status
Sound)	.028	.048)	+361
Defective)		.081)	
Windfalls	.097	.032	- 67
Total	.125	.161	+ 29
Percent of attacks:			
Heavy	90	45	
Medium	10	40	
Light	0	15	

There has been considerable fluctuation in this unit during the past four years, the greatest increase having occurred in 1931. A decrease occurred in the number of standing trees in 1932 when most of the insects made their attacks in nearly a thousand cull logs which were left after an emergency logging operation. Although the cull logs were burned, an increase of 15 percent occurred in 1933.

Of the present infestation, about 50 percent is in standing defective trees and the infested trees are in groups. In consideration of the fact that groups of infested trees are present which constitute a greater hazard, and the heavy and medium attacks still predominate, control measures are recommended for this area.

Rock City			
New attacks per acre:	1933	1934	% change in status
Sound)	.102	.078)	+ 2
Defective)		.026)	
Windfalls	.198	.017	-91
Total	.300	.121	-60
Percent of attacks:			
Heavy	66	64	
Medium	11	29	
Light	23	7	

The infestation on this unit is also occurring in groups and the attacks are predominately heavy. Control measures are recommended.

Hawksite			
New attacks per acre	1933	1934	% change in status
Sound	.013	.022	+69
Defective	.033	.031	- 6
Windfalls	.074	.040	-46
Total	.120	.093	-22
Percent of attacks:			
Heavy	3	16	
Medium	64	57	
Light	33	27	

The 22 percent reduction may be due to a somewhat similar reduction in the percent of windfalls.

Cabin Creek

New attacks per acre:	1933	1934	% change in status
Sound	.030	.103	+243
Defective	.030	.020	- 33
Windfalls	.070	.110	+ 57
Total	.130	.233	+ 79
Percent of attacks:			
Heavy	50	44	
Medium	9	41	
Light	41	15	

There was a marked increase of 519 percent in this unit in 1933. The present increase in sound trees attacked with a status of high, heavy and medium attacks seems to indicate a rapid building up. Control is recommended.

Falls Creek

New attacks per acre:	1933	1934	% change in status
Sound)	.064	.037)	+ 2
Defective)		.026)	
Windfalls	.095	.062	-35
Total	.159	.125	-21
Percent of attacks:			
Heavy	80	30	
Medium	10	50	
Light	10	20	

There has never been a serious infestation on this logged-off unit. The infestation seems to increase or decrease slightly from year to year.

Table IV.

Shoshone District UNIT	Acres	N. A. per acre 1933	N. A. per acre 1934	% N.A. on windfalls 1933	% N.A. on windfalls 1934	Total N. A. 1934	% of increase fr. 1931 to 1932	% of increase 1932 to 1933	% of increase 1933 to 1934
Sissons' 30,31,32,__,__	4,700	.256	.310	17	4	1457	-33	-109	+ 21
Keeler Creek __,__,__,__,__	900	.161	.000	60	0	--	-58	-29	--
North Yellow Dog 30,31,32,33,__	840	.375	.234	95	40	196	+ 57	+ 4	-38
Yellow Dog River 30,31,32,33	2,140	.385	.431	42	1	922	+ 25	-34	+ 12
Yellow Dog Creek 30,31,32,33	4,120	.075	.193	55	48	795	+ 93	-44	+157
Downey Creek 30,31,32,33	4,160	.199	.294	29	10	1223	- 7	+ 29	+ 48
Flat Creek 30,31,32,33	4,120	.224	.174	50	25	717	+176	+ 1	-22
Bennett Creek 30,31,32,33	580	.500	.255	100	23	148	+475	+210	-49
Brett Miner 30,31,32,__	1,550	.125	.161	78	20	249	-18	+ 15	+ 29
Rock City 30,__,__,__,__	1,600	.300	.121	66	14	194	+ 90	+868	-60
Hawksite __,31,32,__,__	8,780	.120	.093	62	43	816	-75	+243	-22
Cabin Creek __,31,__,__,__	7,000	.130	.233	54	47	1631	-69	+519	+ 79
Falls Creek __,__,__,__,__	2,600	.159	.125	60	50	325	+14	+297	-21
Total	43,090	.183	.201	50	22	8673	0	+ 38	+10

Shoshone Summary

New attacks per acre:	1933	1934	% change in status
Sound)	.092	.056)	) . . . . +71
Defective)		.101)	
Windfalls	.091	.044	-52
Total	.183	.201	+10
Percent of attacks:			
Heavy	61	27	
Medium	23	43	
Light	16	30	

FORKS DISTRICT

Data showing the percent of defective trees and status of attacks are not available for this district. Windfalls have constituted a large percentage of the attacked trees for the past four years.

Big Elk

New attacks per acre:	1933	1934	% change in status
Standing	.082	.045	- 45
Windfalls	.089	.303	+240
Total	.171	.348	+103

Potter Creek

New attacks per acre:	1933	1934	% change in status
Standing	.116	.065	- 44
Windfalls	.068	.662	+873
Total	.184	.727	+295

Stewart Creek

New attacks per acre:	1933	1934	% change in status
Standing	.047	.056	+19
Windfalls	.016	.296	+1750
Total	.063	.352	+459

The rise in windfall infestation is responsible for the general increase on these three units. Although the infested trees per acre

figure is rather high, the fact that the infestation is nearly all in windfalls lessens the seriousness of the situation. As there are a great many uninfested windfalls in the area which will serve as host material next year, it seems inadvisable to attempt control measures until this non-resistant supply is exhausted.

Upper Flat Creek

New attacks per acre:	1933	1934	% change in status
Standing	.025	.058	+132
Windfalls	.016	.038	+137
Total	.041	.096	+134
Percent of attacks:			
Heavy	80	40	
Medium	0	10	
Light	20	50	

This is the first increase recorded since 1931. The infestation is not as yet serious enough to warrant control.

Table V.

Forks District UNIT	Acres	N. A. per acre 1933	N. A. per acre 1934	% N.A. on Windfalls 1933	% N.A. on Windfalls 1934	Total N. A. 1934	% of increase fr. 1931 to 1932	% of increase 1932:1933	% of increase 1933:1934
Big Elk Creek 30,__,__,__,__	4,960	.171	.348	52	87	1726	+100	+111	+103
Potter Creek 30,__,__,__,__	3,800	.184	.727	37	91	2762	-10	+124	+2 5
Stewart Cr. 30,__,__,__,__	2,200	.063	.352	25	84	774	-11	-43	+459
Upper Flat Cr. 30,__,__,__,__	3,680	.041	.096	40	40	353	- 7	0	+134
Total	14,640	.125	.383	51	87	5615	+41	+62	+206

Table VI

GRAND TOTAL All Districts:		N. A. per acre		% N.A. on windfalls		Total: N. A.	% of increase fr.1931 to		
	Acres	1933	1934	1933	1934	1934	1932	1933	1934
Coeur d'Alene: Forest	118,410	.158	.206	51	47	24,479	+20	+32	+30

UNITS FOR WHICH CONTROL IS RECOMMENDED

Unit	Acres	N.A.per acre	N.A. on unit
Honeysuckle	2,560	.360	922
Lower Flat Creek	4,120	.174	717
Bennett Creek	580	.255	148
Brett-Miner	1,550	.161	249
Rock City	1,600	.121	194
Cabin Creek	7,000	.233	1631
Siemens	4,700	.310	1457
North Yellow Dog	840	.234	196
Yellow Dog River	2,140	.431	922
Yellow Dog Creek	4,120	.193	795
Downey Creek	4,160	.294	1223
Totals	33,370	.253	8454

Conclusions:

The 1934 insect infestation on the Coeur d'Alene Forest presents a very complex problem. It seems that there are three types

of infestation. The first type comprises infestations that have increased both in number of trees attacked and in the abundance of non-resistant host material, but at the same time have shown a decrease in heavy attacks. This condition is to be expected and means that attacking insects have made fewer attacks in a greater number of trees. As long as they are confined to non-resistant material, no great amount of loss is occurring, and unless a large amount per acre of this material is infested, it is not considered a serious situation. Areas falling into this class are:

Forks	Laverne
Picnic	Can Creek
Tom Lavin	Sissons
Cathcart	Yellow Dog River
Iron Creek	Yellow Dog Creek
Honeysuckle	Shoshone Summary
Little River Summary	Brett Miner*
Leiberg	Cabin Creek

*Borderline case

The second type of infestation includes those infestations that have shown a decrease both in infested trees per acre and non-resistant host material and in increase in the number of heavy attacks. This is also a natural condition, and the reverse of the first type. The insects are concentrating from a large amount of non-resistant material into a lesser number of trees which require

a greater number of attacks to overcome them; therefore, the increase in percentage of heavy attacks. The following units fall into this class:

Taylor's	Bennett
Lower Cougar	Hawksite
Bumblebee*	

*Borderline case

The third type shows a decreasing infestation, a decrease in non-resistant host material and a decrease in heavy attacks. It would seem that this is a very favorable condition. Units falling into this division are:

Cascade	North Yellow Dog
Copper Creek*	Lower Flat Creek*
Forks-Cabin*	Rock City*
West Fork	Falls Creek
Upper Cougar	Grizzly Mountain summary

*Forderline cases

All units on which complete data were taken fall in these three groups except Clay Creek and Downey Creek. Clay Creek is a borderline case and might easily be classed with the first group. Downey Creek shows an increased infestation, a decrease in non-resistant host material and heavy attacks which seems entirely abnormal and is perhaps due to insufficient data.

Respectfully submitted,

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